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IN THE SPECIFICATION:

Please amend paragraph 17 as follows:

Figure 1 illustrates an example vapor compression system 20 that includes a compressor 22, a heat rejecting heat exchanger (a gas cooler in transcritical cycles) 24, an expansion device 26, and a heat accepting heat exchanger (an evaporator) 28. Carbon dioxide refrigerant circulates through the vapor compression system 20. The system 20 further includes a sensor ~~system assembly~~ 56 that measures, estimates, and/or monitors the amount of refrigerant in the system 20.

Please amend paragraph 18 as follows:

The refrigerant exits the compressor 22 at a high pressure and a high enthalpy. The refrigerant then flows through the heat rejecting heat exchanger 24 at a high pressure. A fluid medium 30, such as water or air, flows through a heat sink 32 of the heat rejecting heat exchanger 24 and exchanges heat with the refrigerant flowing through the heat rejecting heat exchanger 24. In the heat rejecting heat exchanger 24, the refrigerant rejects heat into the fluid medium 30, and the refrigerant exits the heat rejecting heat exchanger 24 at a low enthalpy and a high pressure. A pump or fan 34 pumps the fluid medium through the heat sink 32. The cooled fluid medium 30 enters the heat sink 32 at the heat sink inlet or return 36 and can flow in a direction opposite to the direction of the flow of the refrigerant. After exchanging heat with the refrigerant, the heated water 38 exits the heat sink ~~3032~~ at the heat sink outlet or supply 40.

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Please amend paragraph 20 as follows:

After expansion, the refrigerant flows through the passages of the evaporator 28 and exits at a high enthalpy and a low pressure. In the evaporator 28, the refrigerant absorbs heat from a heat source fluid 44, such as air, such as outdoor air, or water. The heat source fluid 44 flows through a heat sink 46 and exchanges heat with the refrigerant passing through the evaporator 28 in a known manner. The heat source fluid 44 enters the heat sink 46 through the heat sink inlet or return 48 and flows in a direction opposite to the direction of flow of the refrigerant. After exchanging heat with the refrigerant, the cooled heat source fluid 50 exits the heat sink 46 through the heat sink outlet or supply 52. The temperature difference between the ~~outdoor~~ air ~~heat source fluid 44~~ and the refrigerant in the evaporator 28 drives the thermal energy transfer from the ~~outdoor air~~ heat source fluid 44 to the refrigerant as the refrigerant flows through the evaporator 28. A fan or pump 54 moves the heat source fluid 44 across the evaporator 28, maintaining the temperature difference and evaporating the refrigerant. The refrigerant then reenters the compressor 22, completing the cycle.

Please amend paragraph 25 as follows:

A sensor system 56 detects the amount of refrigerant in the system 20. When the sensor system 56 detects or estimates that the amount of the refrigerant in the system 20 is below a threshold value, charge has leaked from the system. The sensor system 56 sends a signal to a control 68, indicating that the refrigerant level is below the threshold value. The control 68 provides a signal to open a valve 71 in the storage tank 66 to automatically supply carbon dioxide from the storage tank 66 to the refrigerant stream in the system 20. The threshold value depends on many factors, such as the size of the vapor compression system 20, and one skilled in the art would know what threshold value to employ.

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Please amend paragraph 28 as follows:

The zeolite crystals 70 are located inside a cylinder 72. The combustion products 60 enter the cylinder 72 through an exhaust inlet 74 and flow through the cylinder ~~7270~~ and around the zeolite crystals 72. The carbon dioxide 64 in the combustion products 60 adsorbs into the zeolite crystals 72, extracting the carbon dioxide 64 from the combustion products 60. After the flow of combustion products 64 into the cylinder 72 stops, the carbon dioxide 64 is desorbed from the zeolite crystals 70. In one example, the zeolite crystals 70 are heated to desorb the carbon dioxide 64. One skilled in the art would know what heating temperature to use to desorb the carbon dioxide 64. The desorbed carbon dioxide is then directed to the storage tank 66.

Please amend paragraph 33 as follows:

Figure 4 schematically illustrates a second embodiment of the present invention. After the carbon dioxide 64 is extracted from the combustion products 60 by the carbon dioxide extraction system 62, the carbon dioxide 64 is directly added to the system 20. A small pump or compressor 90 may be used to raise the pressure of the carbon dioxide from the extraction system ~~6462~~ to the system 20 pressure. The carbon dioxide 64 can be added at any point in the system 20. Preferably, the carbon dioxide 64 is added add at the suction 92 of the compressor 22 as this is where the pressure of the system 20 is the lowest.

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Please amend paragraph 34 as follows:

The sensor system 56 detects or estimates the amount of carbon dioxide refrigerant in the vapor compression system 20. When the sensor system 56 detects or estimates that the amount of the refrigerant in the system 20 is above a threshold value, there is too much charge in the system 20. The sensor system 56 sends a signal to a control 68, indicating that the refrigerant level is above the threshold value. The control 68 provides a signal to open a valve 72 on a refrigerant line in the system 20 to purge carbon dioxide refrigerant from the system 20. The valve 72 can be located anywhere on the refrigerant line of the vapor compression system 20. When the sensor system 56 detects or estimates that the amount of refrigerant is below the threshold value, the control 68 provides a signal to close the valve 72 to stop removal of the carbon dioxide refrigerant from the system 20. The threshold value depends on many factors, such as the size of the vapor compression system 20, and one skilled in the art would know what threshold value to employ.